

Barriers and Advantages to Student Participation in the School Breakfast Program Based on the Social Ecological Model: A Review of the Literature

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ABSTRACT

Participation in school meals is a preventive measure against childhood hunger. Participation in the School Breakfast Program (SBP) continues to lag behind that of the National School Lunch Program. The purpose of this literature review was to investigate the barriers and advantages to student participation in the SBP. Using the adaptable framework of the Social Ecological Model (SEM), barriers and advantages influencing participation in the SBP were categorized into: intrapersonal, interpersonal, institutional and public policy. Addressing the stigma of participation by offering universal free breakfast, promoting breakfast consumption as a way of maintaining weight status and marketing to older students should be considered by school nutrition professionals. Educating parents and families on the low cost and variety of foods offered at school versus home is key to increasing student participation in the SBP.

Keywords: School Breakfast Program; Social Ecological Model; barriers; advantages; review

INTRODUCTION

Studies show breakfast is an important meal for children (Nicklas, O'Neil & Myers, 2004). Breakfast consumption at school is associated with children's educational performance, (Murphy, Drake & Weineke, 2005), behavior (Murphy et al., 2000) and health (Rampersaud, Pereira, Girard, Adams, & Metzler 2005). Some states and schools have had success implementing strategies (e.g., providing free meals to all children) to increase breakfast participation. The newest option for offering free meals to children is through the Community Eligibility Provision (CEP), created by the child nutrition reauthorization legislation, the Healthy, Hunger-Free Kids Act of 2010 (Community Eligibility Provision, 2015). CEP provides schools within low-income regions the opportunity to offer free meals to children through the elimination of meal eligibility applications collected from households. One of the most effective strategies for increasing breakfast participation is making breakfast part of the school day rather than in the cafeteria before school (Food & Research Action Center [FRAC], 2015). Such alternate breakfast service methods include Breakfast in the Classroom, Grab n' Go, Breakfast after First Period and Breakfast on the Bus (U. S. Department of Agriculture [USDA] Food and Nutrition Service [FNS], n.d.). Schools and institutions are beneficiaries of additional millions of federal dollars for meal reimbursements that sustain or expand their SBP.

The Social Ecological Model (SEM) provides an adaptable framework for understanding the interrelated factors influencing human behavior such as student participation in the SBP (Townsend & Foster, 2013). This model emphasizes that individual knowledge isn't sufficient for behavior change; increasing social support and environmental support are also needed (McLeroy, Bibeau, Steckler & Glanz, 1988). Identifying factors influencing participation in the SBP are necessary to develop interventions promoting increased breakfast consumption at school.

A literature review was conducted investigating the barriers and advantages to student participation in the SBP based on the SEM. Barriers and advantages were categorized into the following levels of the SEM: intrapersonal, interpersonal, institutional and public policy. Findings from this literature review may provide a conceptual framework for understanding factors associated with student participation in the SBP within the multiple levels of the SEM.

METHODS

Using the key terms *school*, *breakfast*, *program* and *participation*, a search for articles was conducted. Electronic databases were utilized to conduct the systematic search of pertinent articles published between January 1, 2008, and July 2015. Studies were eligible for inclusion if both SBP and participation were addressed, as well as studies addressing barriers, general health, education/academic performance, dietary intake, psychosocial variables and behavior. Excluded studies were those discussing the type of SBP that increases participation in the SBP, access to SBP, SBP participation rates and student's consumption of breakfast at school. Initially, the review began by placing barriers, advantages and disadvantages into one of three categories of mediators: family, school and student and finally, into one of the levels of the SEM. The type of SBP and access were not considered initially as mediators of student participation in the SBP.

RESULTS

The search returned 2,356 articles, of which 53 full articles were retrieved for review. Of these, 24 articles met the inclusion criteria. Table 1 lists the articles included in the literature review. Table 2 includes barriers and advantages influencing participation in the SBP according to the framework levels of the SEM.

Intrapersonal Level

The intrapersonal level of the SEM defines the individual or personal factors that may affect student participation in the SBP. When elementary schools go from a universal free breakfast to an eligibility-based program (i.e., school meal application submission by household used to determine a student's eligibility status (free, reduced-price, paid), decreased student participation in the SBP occurs, and stigma increases for the students that continue to participate in the SBP (Riber & Halderman, 2013). Utilizing findings from focus groups (Bailey-Davis et al., 2013; Lambert, Raidl, Carr, Safaii & Tidwell, 2007), interviews/focus groups (Cullen, Thompson & Watson, 2012) and an online survey (Askelson, Golembieski, DePriest & Williams, 2015b), researchers identified stigma as a barrier to student SBP participation.

Food security occurs at any given time when families have sufficient access to enough food to lead a healthful and active life (Nord, Andrew, & Carlson, 2008). When analyzing school meal participation (i.e., breakfast and lunch) in a cross-sectional study using matched parent-child surveys, Grutzmacher and Gross (2011) found that students with low and very low food security status who did not participate in school nutrition programs reported fewer days eating breakfast compared with all other students. In another cross-sectional study using secondary data from the third-grade wave of the Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K) to examine the determinants of third-grade student participation in the SBP (Bartfield & Kim, 2010), the SBP appeared to function as a means for providing free or reduced price breakfast to only low-income and at-risk children. Age (i.e., 15 to 18 year olds less likely to participate) (Dahl & Scholz, 2011; Gleason & Dodd, 2009) and race (i.e., non-Hispanic white more likely to participate) (Dahl & Scholz, 2011) were found to be intrapersonal barriers affecting student

participation in the SBP that researchers identified through secondary data analysis. Additionally, either through formative research or analysis of collected data, lack of time to eat (Askelson et al., 2015a; Gordon et al., 2007), and lack of participation in school lunch (Bartfield & Kim, 2010) were also reported as intrapersonal barriers.

Participation in the SBP improves the nutritional quality (Clark & Fox, 2009) of students' diets. Intrapersonal advantages of student SBP participation include improved student academic performance (i.e., math, reading) (Kleinman et al., 2002; Murphy, 1998), promoted better student concentration (Johnston, McFadden, Tucker, Denniston & Bordeau., n.d.), decreased absenteeism (Kleinman et al., 2002; Murphy, 1998), improved memory and problem solving, (Johnston et al., n.d.) and enhanced student health (Gleason & Dodd, 2009). With regard to student weight, a decreased risk of obesity in food insecure households was found in students who consumed breakfast at school (Khan, Pinckney, Keeney, Frankowski & Carney, 2011) and reduced BMI levels were associated with higher student participation in the SBP (Gleason & Dodd, 2009). Hampson (2012) used secondary data from the National Health and Nutrition Examination Survey (NHANES) to examine the weight status and association between participation in school meal programs among 12- to 15- year olds to determine if the association differed by race and poverty income ratio. Findings suggest that intended weight-maintaining effects of school breakfast were absent among Whites, and primary intervention (e.g., nutrition education and increased physical education) is critical for this group. Offering more varieties of breakfast foods at school compared to home was also reported as an advantage of school breakfast participation (Lambert et al., 2007).

Using data collected as part of the third School Nutrition Dietary Assessment Study (SNDA-III), Clark and Fox (2009) explored the relationship between students' participation in the school meal programs and the nutritional quality of their diet. SBP participants were less likely to be inadequate in vitamin A, phosphorus, magnesium, zinc and potassium, in comparison to matched SPB nonparticipants. However, SBP participants exceeded the sodium upper limit; food and beverages contributing to this finding were not reported.

Interpersonal Level

The interpersonal level of the SEM is defined as the social network and social support systems influencing student participation in the SBP. Other interpersonal barriers included dislike for government support/government interference (Askelson et al., 2015b), family/parental perceptions of regional values (e.g., breakfast priority at home) (Askelson et al., 2015b) and parental attitude and influence (Askelson et al., 2015b; Bailey-Davis et al., 2013). Lambert et al. (2007) identified interpersonal barriers in a formative research study using school nutrition directors and teachers' focus groups. School staff support (e.g., opposition from school staff in implementation and operation of an SBP) and parental influence (e.g., parents believing their children were not allowed to participate) were the two major themes that emerged as barriers to student SBP participation.

Table 1. Description of Literature Review Papers

Doctoral Dissertations				
Author(s), Year	Design	Data Source	Sample	Setting
Hampson, 2012	Quantitative – cross-sectional	NHANES	Students 12 to 15-year olds (n=3,001)	Nationwide
Ward, 2009	Literature Review	N/A	N/A	N/A
Report				
Author(s), Year	Design	Data Source	Sample	Setting
Askelson, et al., 2015b	Quantitative	Electronic survey instrument	Parents of students grades Pre-K – 12 (n=8,982)	IA
Dahl & Scholz, 2011	Quantitative – cross-sectional – descriptive analysis	Survey of Income and Program Participation (SIPP) – 1993, 1996, 2001 panels (spans ten calendar years)	Students 5 to 17 years old (n=all students)	Nationwide
Glantz, et al., 1994	Qualitative – case study	Each case study per site (n=4) included: an SFA director and school principal interview and series of parent and student focus groups (n=6)	SFA directors (n=4), school principals (n=4), students grades K – 12 in focus groups (n=16) and, parents in focus groups (n=8)	FNS Regions – West, Southeast, Southwest
Gordon, et al., 2007	Quantitative – descriptive analysis – weighted	Third SNDA-III	Schools (n=287) and students grades Pre-K – 12 with Day 1 recall and parent interviews (n=2,314)	Nationwide
Johnston, et al., (n.d.)	Quantitative – descriptive analysis	Data collected at baseline and at 3-month follow-up	Teachers (n=19), students grades K – 5 (n=317), and parents (n=137)	Upstate NY
Moore, et al., 2009	Quantitative – descriptive analysis	NSLP/SBP Access, Participation, Eligibility, and Certification (APEC)	Schools (n=266) and students grades Pre-K – 12 with administrative records (n=2,186)	Nationwide
Waehrer, et al., 2008	Quantitative – descriptive analysis	Child Development Supplement (CDS) of the Panel Study of Income Dynamics – completed time diaries	Students grades 1 – 12 (n=1,134)	Nationwide

Table 1. Description of Literature Review Papers (continued)

Journal	Author(s), Year	Design	Data Source	Sample	Setting
	Askelson, et al., 2015a	Qualitative – participatory approach	Meetings (n=4) with students and concept mapping	Students grades 9 – 12 (n=75)	IA
	Bailey-Davis et al., 2013	Qualitative	Student (n=4) and parent (n=2) focus groups	Students in grades K – 8 (n=23) and parents (n=22)	PA
	Bartfeld & Kim, 2010	Quantitative – cross-sectional	Third-grade wave of the ECLS-K Cohort	Students grade 3 (n=6,680)	Nationwide
	Basch, C. E.	Literature review	N/A	N/A	N/A
	Clark & Fox, 2009	Quantitative – cross-sectional – descriptive analysis – weighted	Third SNDA-III	Schools (n=287) and students grades 1 – 12 (n=2,314)	Nationwide
	Cullen et al., 2012	Qualitative	Student and parent interviews; teacher (n=4) Child nutrition (CN) manager (n=1) focus groups	Students grades 6 – 8 (n=47) and parents (n=41); teachers (n=26) and CN managers (n=10)	Southeast TX
	Gleason & Dodd, 2009	Quantitative – cross-sectional	Third SNDA-III	Students grades 1 – 12 for whom height and weight measurements were obtained (n=2,228)	Nationwide
	Grutzmacher & Gross, 2011	Quantitative – cross-sectional	Matched parent-child surveys	Students grade 4 (n=92)	MD and DC
	Khan et al., 2011	Quantitative – cross-sectional	Self-administrated surveys	Students grades 6 – 8 (n=373)	VT
	Kleinman et al., 2002	Quantitative – cross-sectional	Collaborative study of a Universal Free Breakfast (UFB) in the Boston Public Schools	Students grades 4 – 6 (n=97)	MA
	Lambert et al., 2007	Qualitative	School nutrition director (SND) (n=3) and teacher (n=3) focus groups	SNDs (n=24) and teachers (n=31)	UT, NJ, IL
	McDonnell et al., 2004	Qualitative	School business official (n=1), principal (n=2), SND (n=2), parent (n=2) and student (n=2) focus groups	School business officials (n=9), principals (n=14), SNDs (n=20), parents (n=13) and students grades 6 – 12 (n=17)	PA
	Murphy, 1998	Quantitative – cross-sectional	Parent and/or child measures, school records, and staff reports of participation before UFB	Students grades 3 – 8 (n=133)	PA and MD
	Ribar & Haldeman, 2013	Quantitative – descriptive analysis	Different administrative sources (e.g., counts of breakfast and lunches served by each school)	UFB to eligibility-based program schools (n=3) and eligibility-based program to UFB school (n=1)	NC
	Sabol et al., 2011	Qualitative	Student (n=6) and parent and/or legal guardian (n=3) focus groups	Students grades 4 – 5 (n=49) and parents (n=29)	Southeast AL

Table 2. Barriers and Advantages Influencing Participation in the School Breakfast Program According to the Frameworks of the Social Ecological Model (SEM)

SEM Level	Barriers	Advantages
Intrapersonal	Stigma	Improved student academic performance (i.e., math, reading)
	Appearance of SBP offered only to low-income and at-risk children	Decreased absenteeism
	Age	Improved memory and problem solving
	Race	Enhanced student health
	Lack of time to eat	Decreased risk of obesity in food insecure households
	Lack of participation in school lunch	Associated with reduced BMI levels
		Offering more varieties of breakfast foods at school compared to home
		Students less likely to be inadequate in certain vitamins and minerals
Interpersonal	Family/parental perceptions of regional values (e.g., breakfast priority at home)	Perceived student school performance
	School staff support (e.g., opposition from school staff in implementation and operation of an SBP)	Parental benefits (e.g., convenience)
	Perceived variety of food, knowledge and awareness (i.e., not understanding the importance of breakfast)	
	Allergies, dietary or medical/special needs	
	Student's preference (e.g. dislike for school breakfast foods served)	
	Attitude toward school meal	
	Perceived food quality	
	Conflicting/time issues events (e.g., parents late, late buses, pre-class activities)	
	School type (e.g., high school)	

Table 2. *Barriers and Advantages Influencing Participation in the School Breakfast Program According to the Frameworks of the Social Ecological Model (SEM) (continued)*

SEM Level	Barriers	Advantages
Institutional	<p>Scheduling of meal time</p> <p>Conflicting/time issues events (e.g., parents late, late buses, pre-class activities)</p> <p>Geographic area</p> <p>Administrative barriers (e.g., school staff support)</p> <p>Cafeteria issues (e.g., long lines)</p> <p>Not available in all schools</p> <p>Meal length of time</p>	N/A
Public Policy	<p>Cost of school breakfast</p> <p>Number of people in the household (related to cost)</p> <p>Family income (related to cost)</p> <p>Urbanity (related to cost)</p> <p>Saving money for other purchases (related to cost)</p> <p>Financial (e.g., income qualifying income guidelines restrictive for free and reduced price meals)</p>	<p>Increased federal funding for state budgets generation of revenue</p> <p>Improved dietary status of youth</p>

Askelson et al. (2015b) conducted an online survey of parents of children in grades pre-kindergarten through 12 in the state of Iowa to better understand why school breakfast participation was low compared to school lunch participation. Perceived variety of food; knowledge and awareness (i.e., not understanding the importance of breakfast); allergies, dietary, or medical/special needs; student's preference (e.g. dislike for the SB food); attitude toward school meals; and perceived food quality were some of the identified interpersonal barriers connected to student issues for not participating in the SBP, while perceived student school performance and parental benefits (e.g., convenience, child eating breakfast in a safe environment) were identified as interpersonal advantages to student SPB participation.

Institutional Level

The institutional level of the SEM involved barriers concerning the characteristics and rules and regulations for operation of the school. School type (e.g., high school) was a factor strongly associated with breakfast participation among free and reduced-price meal eligible students' participation in the National School Lunch Program (NSLP) and SBP (Moore, Hulsey & Ponza, 2009). Middle school and high school students participate less often in the SBP (7% and 11% less) than elementary school students. This gap between older and younger students participating in the SBP may be due to increased independence of older students and increased stigma associated with school meals (Moore et al., 2009). The scheduling of meal time (Askelson et al., 2015b; Bailey-Davis et al., 2013; Basch, 2011; McDonnell, Probart, Weirich, Hartman & Birkenshaw, 2004,) and conflicting/time issues events (e.g., parents late, late buses, pre-class activities) (Cullen et al., 2012; Tapper, Murphy, Moore, Lynch & Clark, 2007; Sabol, Struempfer & Zizza, 2011) were often cited as barriers at the institutional level.

Geographic area was another institutional barrier. Dahl & Scholz (2011) analyzed trends in the participation and eligibility for free and reduced price NSLP and SBP meals over a ten-year period using data Survey of Income and Program (SIPP) collected by the U.S. Census Bureau. Children living in the Northeast and West regions of the United States were less likely to participate in the SBP compared to children living in the South. From secondary analysis of ECLS-K data, Bartfield and Kim (2010) found SBP was less common in the Northeast region of the United States, suburban areas and rural area within a metropolitan statistical area. Other institutional barriers included administrative barriers (e.g., school staff support) (Khan et al, 2011; Ward, 2009), cafeteria issues (e.g., long lines) (Cullen et al., 2012), not available in all schools (Waehrer, 2008) and meal length of time (Glantz, Berg, Porcari, Sackoff & Pazer, 1994; Sabol et al., 2011).

Public Policy Level

The public policy level of the SEM involved laws and policies found at the local, state and national level. The cost of school breakfast was a public policy barrier for student participation in the SBP (Bartfield & Kim, 2010; Cullen et al., 2012; McDonnell et al., 2004; Sabol et al., 2011). The number of people in the household (Moore et al., 2009), family income (Sabol et al., 2011) and financial (e.g., qualifying income guidelines restrictive for free and reduced price meals) (Lambert et al., 2007) were perceived policy barriers related to cost. A literature review conducted by Basch (2011) found increased federal funding for state budgets, generation of revenue and improved dietary status of youth as advantages for student participation in the SBP.

ANALYSIS/CONCLUSIONS

Twenty-four articles identified in this literature review suggest barriers and advantages to student participation in the SBP exist on four levels of the SEM: intrapersonal (individual), interpersonal (family), institutional (school) and public policy. Stigma of SBP participation was found to be a common barrier at the intrapersonal level, especially in students eligible for free and reduced price meals. As observed by Riber & Halderman (2013), when universal free breakfast was changed to an eligibility-based program, stigma increased. Thus, offering universal free breakfast may address the stigma associated with SBP participation. As students advance from elementary school to middle and high school, students participate less in the SBP. Though Moore et al., (2009) attributes the widening gap to the independence of older students, social marketing of the school breakfast can arouse the interest of this group to increase their participation in the SBP (Askelson et al, 2015a).

Promoting the benefits of school breakfast uncovered in this literature review, such as reduced weight in students who consume school breakfast, better academic performance and student health, should be considered. Program outreach and social marketing efforts that school breakfast is the norm could facilitate increasing school breakfast appeal beyond low-income students participating in the SBP. Making breakfast part of the school day could address students' perception of lacking time to eat breakfast in their schools. Advocating convenience and variety of foods offered at school versus home could address family influence on student participation in the SBP and should be considered.

At the institutional level, time issues, conflicting events, long lines, the length and scheduling of meals were all factors that could be targeted by school foodservice professionals. Alternative methods of serving breakfast, such as Grab n' Go, Breakfast vending or 2nd Chance Breakfast/Brunch, are proven strategies for increasing breakfast participation (No Kid Hungry Center for Best Practices, n.d.). Alternative settings for serving breakfast could be the cafeteria, hallways or common areas inside or outside of the building.

There are several limitations to this literature review. First, no criteria were established to evaluate the quality of the articles included in the literature review. At the onset of the literature review, the purpose was to only identify mediators (i.e., barriers, advantages and disadvantages) of student participation in the SBP. It was not until after the fact, when fitting identified barriers and advantages of student participation in the SBP into the SEM, that the authors recognized the included articles in the literature review had not been measured against any quality criteria. A second study limitation was that the retrieved articles were not discussed or agreed upon with another individual to include in the literature review.

With the SBP continuing to lag behind the NSLP (Bailey-Davis, et al., 2013), there is a further need for the social-ecological factors cited in this literature review in promoting student participation in the SBP. Formative research findings can aid federal policymakers, state agencies, school foodservice professionals, educators and advocates in developing, implementing and improving student participation in the SBP (Jones, Jahns, Laraia & Haughton, 2003).

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BIOGRAPHY

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